

Section 2.5 Examples for Inductive and Deductive Reasoning

State whether each argument is an example of inductive or deductive reasoning.

1. Joe is trying to decide whether he wants to buy his lunch in the cafeteria on Friday. He has noticed that over the past three weeks, they have served pizza on Friday. Joe concludes that pizza will be served on Friday.
2. Samantha is taller than Luisa, and Luisa is taller than Mary. Therefore Samantha is taller than Mary.
3. If a triangle is equilateral, then all of its sides have equal length.
 $\triangle ABC$ is equilateral. Therefore all of the sides of $\triangle ABC$ are equal in length.
4. Monica measures the angles that are formed by the intersection of two lines. She notices that each angle measures 90° . She then measures the angles formed by several other pairs of intersecting lines and finds that those angles also measure 90° . Monica then concludes that any two lines that intersect must form 90° angles.
5. Antonio remembers the definition of isosceles triangles to be a triangle with at least 2 congruent sides equal in measure. He measures the sides of $\triangle ABC$ and finds that two sides are congruent. He therefore concludes that $\triangle ABC$ is isosceles.

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Practice for the Instructional Guide Lesson on Logical Chains

For each statement and given, write any valid conclusions.

1.

Statement: Complementary angles have a sum of 90 degrees.

Given: $\angle A$ and $\angle B$ are complementary.

Conclusion:

2.

Statement: If two angles form a linear pair, then they are supplementary.

Given: $\angle A$ & $\angle B$ form a linear pair.

Conclusion:

3.

Statements: If two lines have the same slope, they are parallel.
If two lines are parallel, they do not intersect.

Given: The slope of line m is $\frac{1}{2}$.
The slope of line n is $\frac{1}{2}$.

Conclusions:

4.

Statement: All right angles are congruent.

Given: $\angle 1$ is a right angle.
 $\angle 2$ is a right angle.

Conclusion:

5.

Statement: If two lines are perpendicular to a third line, then the two lines are parallel.

Given $l \perp n, m \perp n$

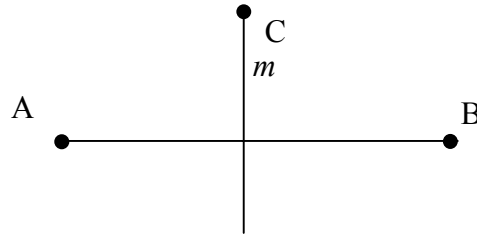
Conclusion:

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6.

Statement: If a point is on the perpendicular bisector of a segment, then it is equidistant from each endpoint of that segment.

Given: Line m is the perpendicular bisector of \overline{AB} .
Point C is on line m .

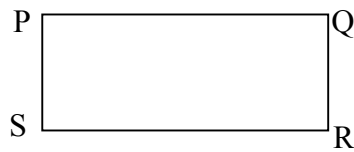


Conclusion:

7.

Statements: All rectangles are parallelograms.
All parallelograms are quadrilaterals.

Given: Figure $PQRS$ is a rectangle:

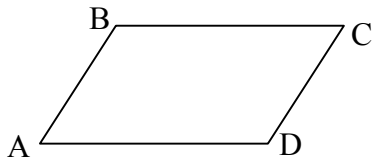


Conclusions:

8.

Statement: The opposite angles of a parallelogram are congruent.

Given: Figure $ABCD$ is a parallelogram.



Conclusions:

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9.

Statements: If two angles form a linear pair, they are supplementary.
Supplementary angles have a sum of 180 degrees.

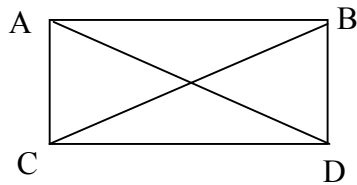
Given: $\angle A$ and $\angle B$ form a linear pair.

Conclusions:

10.

Statement: The diagonals of a rectangle are congruent.

Given: Figure $ABCD$ is a rectangle.
 \overline{AD} and \overline{BC} are diagonals.

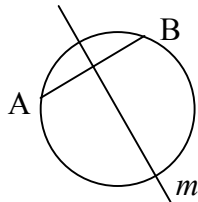


Conclusion:

11.

Statement: The perpendicular bisector of a chord of a circle passes through the center of the circle.

Given: Line m is the perpendicular bisector of chord \overline{AB} .



Conclusion: